

# **The Influence of Environmental Knowledge with The Theory of Planned Behavior Approach on Green Purchase Intention for Battery Electric Vehicles in Indonesia**

Yosua ParasianHutagalung  
Mahrinasari MS

Dorothy Rouly Haratua Pandjaitan

*Corresponding Author: Mahrinasari MS*

*Magister Management of Economics & Business Faculty, University of Lampung, Indonesia*

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**ABSTRACT:** *The study addresses the environmental impact of conventional transportation systems and proposes a solution through the transition from traditional vehicles to energy-efficient ones to mitigate carbon emissions. Despite the low global adoption of eco-friendly vehicles, this research investigates factors influencing individuals' intentions to purchase Battery Electric Vehicles (BEVs) in Indonesia. Employing the Theory of Planned Behavior (TPB) and integrating environmental knowledge as an additional variable, data from 427 car users were analyzed using AMOS 22 statistical software. The study enhances the TPB by incorporating environmental knowledge, revealing that attitude, perceived behavioral control, social norms, and environmental knowledge significantly impact consumers' intentions to adopt BEVs in Indonesia. The findings underscore the role of government and automotive industry practitioners in implementing effective strategies to encourage the public's uptake of energy-efficient vehicles, ultimately contributing to a more sustainable transportation system. In conclusion, the research supports the notion that informed individuals are more likely to choose electric vehicles, emphasizing the importance of knowledge and education in fostering confidence, empowerment, and belief in environmentally friendly vehicle ownership.*

**KEYWORD:** *Electric Vehicles, Theory of Planned Behavior, Environmental Knowledge, Green Purchase Intention.*

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## **I. Introduction**

The current crucial issue revolves around climate change, acknowledged by the Food and Agriculture Organization (FAO) warning of potential global food crises if unchecked (Food and Agriculture Organization, 2019). The United Nations Framework Convention on Climate Change (UNFCCC) defines climate change as a long-term alteration in temperature and weather patterns caused directly or indirectly by human activities, affecting the global atmospheric composition, particularly greenhouse gases (GHGs) such as Carbon Dioxide, Methane, Nitrogen, etc. Despite their role in stabilizing Earth's temperature, the increasing concentration of GHGs thickens the atmospheric layer, leading to global warming (Hickmann et al., 2021). Global warming results from heightened greenhouse gas levels due to human activities, contributing to climate change and adverse effects like polar ice melting, coastal flooding, and intensified heat radiation, with Carbon Dioxide responsible for 50% of the warming impact (Cahyono, 2015). Reports from the Air Quality Life Index (AQLI) in 2021 reveal that current air pollution levels may cause Indonesians to lose an average of 1.2 years of life expectancy, failing to meet World Health Organization (WHO) guidelines for fine particulate matter (PM2.5) concentrations (Lee & Greenstone, 2021).

The challenge of climate change calls for increased environmental consciousness among society, necessitating the use of eco-friendly products. To address this, alternative energy sources for environmentally friendly and sustainable motor vehicles are essential. Electric vehicles emerge as a solution to these issues, aligning with the concept of environmentally friendly transportation systems that minimize adverse impacts on the environment, society, and climate (Mamun et al., 2019). According to S. Wang et al. (2016), the utilization of environmentally friendly transportation innovations can mitigate environmental problems like carbon emission pollution. Electric vehicles serve as a reference point for transitioning to a sustainable transportation system capable of minimizing negative impacts on the environment and climate change. The urgent global problems of climate change and carbon emission pollution from conventional vehicles are being tackled through a shift to electric cars. Several leading automotive companies have announced plans to cease conventional vehicle production, replacing them with electric cars as a step towards environmentally friendly transportation. This

decision reflects the automotive industry's awareness of the importance of reducing vehicle emissions and contributing to global issues related to climate change and air pollution. In addition to being a solution for reducing the impacts of climate change and air pollution, the transition to electric cars also holds potential benefits for the global community. Electric cars can reduce dependence on limited and fluctuating fossil fuels by utilizing a diverse range of energy sources, including renewable energy like solar and wind power. Furthermore, evolving battery technology enables electric cars to serve as energy storage devices, assisting in regulating electricity supply, supporting grid stability, and overcoming challenges posed by fluctuating renewable energy. Beyond environmental benefits and support for sustainable energy systems, the future sustainability of transportation also offers opportunities to create new jobs in industries related to electric vehicle technology, development, and infrastructure. Therefore, the shift to electric cars not only aids in protecting the environment and addressing global issues but also paves the way toward a more sustainable and innovative future for the global community.

Environmental awareness, fueled by environmental knowledge, plays a crucial role in promoting sustainable behavior, particularly in the context of pro-environmental studies (Mohd Suki, 2016; Mohiuddin et al., 2018). Consumer purchasing behavior aligned with environmental knowledge significantly enhances interest in environmentally friendly products, emphasizing the impact of increased environmental knowledge on consumer consumption patterns (Rashid, 2009). Studies suggest a correlation between heightened environmental knowledge and the likelihood of adopting hybrid cars, reflecting a doubled possibility as individuals' environmental knowledge increases (Mohiuddin et al., 2018; Tanwir, 2020; Wang et al., 2016). However, conflicting findings by Debora Indriani et al. (2019), Paço & Lavrador (2017), and Tadjewski & Wagner-Tsukamoto (2006) suggest that environmental knowledge does not significantly influence consumer purchase intentions. Environmental concern, a concept gaining importance due to rapid global changes, refers to awareness and sensitivity to the environment's negative impacts caused by human activities. Environmental concern significantly influences consumer behavior, with individuals increasingly choosing sustainable and eco-friendly products (Hickmann et al., 2021). Government policies play a crucial role in promoting environmental concern, driving individuals and organizations to adopt sustainable practices (S Asadi, 2021). Attitude, as a component of the Theory of Planned Behavior, influences individuals' desired or undesired behavior assessments (Ajzen, 1991; Alzahrani et al., 2019; Shahla Asadi et al., 2021; Mamun et al., 2019; Tu & Yang, 2019). Subjective norms, encompassing injunctive and descriptive norms, impact individuals' purchase intentions for environmentally friendly cars positively in line with Mamun (2019), Asadi et al. (2021), but Tanwir (2020) found subjective norms to be insignificantly influential. Perceived behavior control, the third determinant in the Theory of Planned Behavior, consistently shows a significant impact on purchase intentions for environmentally friendly cars, aligning with findings by Tanwir (2020), Mamun (2019), and Tu & Yang (2019). Overall, these factors collectively shape individuals' intentions and behaviors regarding the adoption of environmentally friendly vehicles.

## **II. Literatur review**

### *2.1. The Theory of Planned Behavior*

TPB, an extension of the Theory of Reasoned Action, shapes an individual's behavioral intention by considering both internal and external factors. According to the TPB model, behavioral intention is influenced when consumers express a positive attitude toward the behavior, respond to support or acceptance from their social circles (subjective norm), and perceive that they have the capability to adopt the behavior within their capacity (perceived behavioral control) (Ajzen, 1991).

Recent studies utilizing TPB have demonstrated that environmentally friendly behavior can be evaluated using its core components: attitude, subjective norm, and perceived behavioral control. The implementation of TPB in assessing consumers' environmentally friendly behavior has been consistently supported by significant findings from various studies. For instance, TPB has been employed in recent research on energy-saving behavior, consumer intentions regarding restaurants' organic menus, and the examination of behavioral intentions to reduce car travel (Hamzah & Tanwir, 2021).

Despite the extensive and robust application of TPB in numerous studies on environmentally friendly behavior, authors suggest that additional variables could enhance the explanatory power of TPB. It indicates that environmental knowledge is crucial in understanding consumers' behavior within the ecological study perspective. Based on their research, scholars found that environmental knowledge significantly influences consumers' ecological behavior (Paço & Lavrador, 2017).

Moreover, previous research by Asadi et al., (2019) argued that relying on a single theory is inadequate to explain human behavior. Therefore, additional variables play a significant role in enhancing the explanatory capacity of behavioral theories. Consequently, beyond the three TPB fundamentals (attitude, subjective norm, and perceived behavioral control), this study introduces another variable, environmental knowledge, to investigate the environmentally friendly behavioral intentions of individuals.

### *2.2. Green Purchase Attitude and Intention to Purchase an electric vehicle*

'Attitude' is defined as "the degree to which an individual has a desirable or undesirable appraisal or assessment of the behavior" (Ajzen, 1991). The concept includes two subcomponents, namely affective and instrumental (Rhodes & Courneya, 2003). In this context, the affective subcomponent is conceptualized based on individual evaluations, specifically their inclination or desire towards a particular behavior. Meanwhile, the instrumental subcomponent of attitude refers to individuals' evaluations of whether a specific behavior is considered beneficial or harmful. Concerning the use of electric vehicles, the preferences observed by car users are crucial and can shape their attitude towards that behavior (Alzahrani et al., 2019).

As implied by Hoik Kim et al. (2018), the process of adopting environmentally friendly vehicles may involve evaluations and perspectives, encompassing both positive and negative views of adopting environmentally friendly behavior, influencing the decision to adopt or reject. Research by Schmalful et al. (2017) found that attitude significantly influences the acceptance of environmentally friendly vehicles. In contrast, Thananusak's study (2017) revealed that the pricing factor of electric vehicles, categorized as expensive, leads to a withdrawal of a positive attitude towards purchasing the vehicles. Therefore, if the price of electric vehicles can be lowered to be affordable, it may attract people's interest to have a positive attitude towards the adoption of electric vehicles. Consequently, the divergence in the influence of attitude on the behavioral intention to purchase electric vehicles, as mentioned earlier, necessitates further research on the matter. Based on the preceding literature, the following can be hypothesized:

H1. Green Purchase Attitude has a positive and significant impact on Intention to Purchase an electric vehicle.

### *2.3. Subjective Norm and Intention to Purchase an electric vehicle*

The foundational Theory of Planned Behavior posits that subjective norm pertains to "perceived social pressure from others to perform or not perform a certain behavior" under specific circumstances (Ajzen, 1991). The subjective norm construct comprises injunctive and descriptive characteristics (Ajzen, 2019; Rhodes & Courneya, 2003). Injunctive subjective norm involves individuals' assessments or beliefs regarding whether their social circles want them to engage in a particular behavior or not. On the other hand, descriptive subjective norm is gauged based on individuals' evaluations of whether a specific behavior is being carried out by their social circles. In the context of intending to purchase hybrid cars, individuals are inclined to be motivated to "engage in that behavior" when they perceive that their social circle or the people around them are transitioning towards decarbonizing the transportation system through the adoption of environmentally friendly cars (White & Sintov, 2017). This influence can be initiated or manifest when individuals in their social circle share their perspectives and insights with each other. Social influence extends beyond family circles and can come from anyone they hold in high regard, including friends, social influencers (e.g., celebrities), and others (Lim et al., 2019). The greater the social pressure exerted, the more likely individuals are to be influenced in adopting the behavior (Wang et al., 2016). Alternatively, according to Ng et al. (2018), the impact or pressure from social peers in the context of adopting environmentally friendly cars remains unclear and unconvincing, given the low statistical rate of environmentally friendly cars' adoption worldwide to date. Therefore, this study aims to investigate the impact of social norms on driving individuals' intention to purchase electric vehicles. Based on the preceding literature, the following can be hypothesized:

H2. Subjective norm has a positive and significant impact on Intention to Purchase an electric vehicle.

### *2.4. Perceived Behavioral Control and Intention to Purchase an electric vehicle*

Perceived behavioral control stands as the third determining factor according to the Theory of Planned Behavior, and it has been widely utilized in numerous studies to examine individuals' behavioral intentions (Kiriakidis, 2017). As defined by Ajzen (1991), perceived behavioral control or self-control refers to "people's perception regarding the level of ease or difficulty in performing the behavior of interest." Perceived behavioral control comprises two components, namely self-efficacy and controllability (Ajzen, 2019; Rhodes & Courneya, 2003). Self-efficacy involves individuals' assessment of the ease or difficulty in executing a behavior, while controllability pertains to individuals' absolute control in carrying out a specific behavior (Rhodes & Courneya, 2003). In the context of the intention to purchase hybrid cars, perceived behavioral control revolves around whether individuals are seen as capable of buying hybrid cars, specifically considering their financial capacity (Adnan et al., 2017), as well as the availability of other external resources (e.g., government tax exemption and purchasing rebates) (Hoe Hong et al., 2013).

That being said, the authors of Schmalfu et al. (2017) clarify that the impact of perceived behavioral control on behavioral intention may diminish if people harbor negative views about hybrid cars, such as certain features that might fall below their expectations or preferences. Consequently, such circumstances may constrain their interest in executing the intention to purchase. This study aims to delve further into the influence of perceived behavioral control on the intention to purchase electric vehicles. Based on the preceding literature, the following can be hypothesized:

H3. Perceived behavioral control has a positive and significant impact on Intention to Purchase an electric vehicle.

### 2.5. Environmental Knowledge and Intention to Purchase an electric vehicle

Environmental knowledge pertains to an individual's understanding of the environment and critical issues associated with it, such as climate change, deforestation, and the contamination of the sea with non-degradable waste. This knowledge encompasses the capacity or self-efficacy of individuals in comprehending and evaluating societal activities and their impacts on the ecosystem, considering both positive and negative consequences (Qomariah, 2020). The concept suggests that environmental knowledge aids individuals in comprehending and assessing the positive or negative outcomes related to environmental well-being, subsequently influencing their behavioral actions. Individuals with high levels of environmental knowledge are anticipated to be proficient in evaluating whether a specific behavioral action leads to environmental consequences, whether positive or negative. Moreover, they are inclined to be aware that adverse environmental consequences often stem from human consumption activities and behavior.

In numerous studies, environmental knowledge is used as an indicator to influence people's behavioral intentions within the context of pro-environmental research (Mohd Suki, 2016; Mohiuddin et al., 2018). Similar to other ecological behavior studies, individuals' environmental knowledge is evaluated based on subjective knowledge rather than objective knowledge. Scholars assert that subjective knowledge is more suitable for use in environmental behavior research compared to objective knowledge (Han, 2019). Objective knowledge relies on the accuracy perspective (i.e., how much an individual actually knows). In contrast, subjective knowledge depends on the self-assessment perspective (i.e., how much an individual thinks he/she knows). Furthermore, individuals' objective knowledge does not reflect the actual level of their knowledge, nor does it indicate their perception of how much they know. Commonly associated with subjective knowledge are individuals' direct and indirect experiences related to pro-environmental behavior. Therefore, this study underscores individuals' intention to purchase ecological vehicles, where the relevance of their direct or indirect experience with the vehicle is crucial.

The authors of Chin et al. (2020) emphasized the importance of educating consumers about sustainability and well-being in the context of green purchasing implications, wherein limited knowledge is considered a barrier that may hinder their intention to adopt environmentally friendly practices. Similarly, concerning the intention to purchase hybrid cars, the authors of (Mohiuddin et al., 2018) suggested that the likelihood of people adopting hybrid cars can increase with an elevation in their environmental knowledge. As suggested by Lin and Niu (2018), people's pro-environmental decisions are significantly dependent on their knowledge of environmental well-being. In summary, this study aims to explore the impact of environmental knowledge on the intention to purchase electric vehicles. Based on the preceding literature, the following can be hypothesized:

H4. Environmental knowledge has a positive and significant impact on Intention to Purchase an electric vehicle.

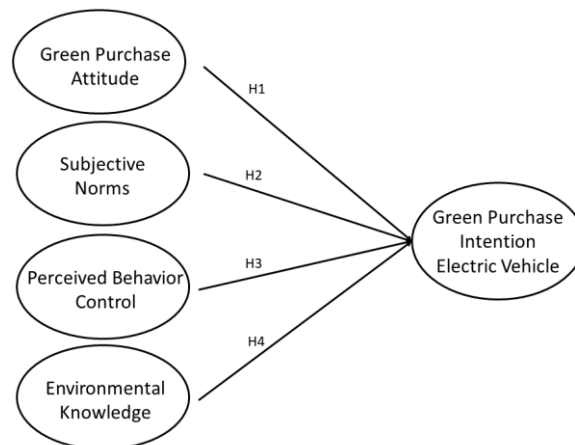


Figure 1. Conceptual Model

### III. Research Methodology and Data Analysis

In order to obtain the data for the study, an online self-administered survey was conducted. The survey was structured based on a closed-ended questionnaire. Quantitative methods were applied by distributing structured self-administered questionnaires to Indonesian consumers who own a car. After screening, a total of 427 responses were found usable and valid as samples for analysis, in line with valid responses. The collected

respondent data were analyzed using structural equation modeling (SEM) analysis with the statistical tool AMOS. The sampling method employed in this study is non-probability sampling using a purposive sampling technique, which is a sampling technique with specific considerations (Sugiyono, 2014). The respondents' profile obtained will be seen in Table 1.

**Table1:Characteristicsofrespondents**

Demographic Variables	Category	Frequency	Percentage (%)
Gender	Male	277	64,87
	Female	150	35,13
Age	20 - 29	14	3,28
	30 - 39	215	50,35
	40 - 49	191	44,73
	50 and above	7	1,64
Income per month	Less than Rp 5,000,000	24	5,62
	Rp 5,100,000 - Rp 10,000,000	204	47,78
	above Rp 10,000,000	199	46,60
Education level	High School	32	7,49
	Diploma	108	25,29
	Bachelors	242	56,67
	Masters	40	9,37
	Doctorate	5	1,17

*Source:PrimaryDataProcessed,2023*

Table 1 shows that there were 277 respondents or 64.87% who were male, while 150 respondents or 35.13% were female. These results indicate a significant difference in participation between the two genders when considering the purchase of electric cars. This phenomenon has drawn our attention to better understand the factors that may influence the preferences for purchasing electric cars based on gender. The possibility that the higher number of male respondents in this study could be related to different consumption preferences and technology preferences between the two groups.

Based on age characteristics, it can be determined that respondents aged 30-39 years significantly dominate the intention to purchase electric cars, totaling 215 respondents (50.35%). Following this, respondents aged 40-49 years constituted 191 respondents (44.73%). Meanwhile, those in the age group of 20-29 years were 14 respondents (3.28%), and lastly, respondents aged above 49 years were only 7 respondents (1.64%) who met the criteria and were willing to fill out the questionnaire. This implies that the demographic profile of respondents in this study indicates that the majority of respondents fall within the age range of 30-49 years, with the highest percentage being 50.35% for the age group of 30-39 years and 44.73% for the age group of 40-49 years.

Based on respondent data categorized by monthly income, it can be observed that the average monthly income of respondents in the study is divided as follows: 24 respondents (5.62%) have an income below Rp 5,000,000, 204 respondents (47.78%) fall within the income range of Rp 5,000,000 – Rp 10,000,000, and 199 respondents (46.60%) have an income above Rp 10,000,000.

Based on respondent education data, 7.49% of the total 427 respondents have completed high school, indicating that a small segment of the Indonesian population with high school education also intends to purchase electric cars. Despite the relatively low percentage, it is noteworthy as electric cars are still a relatively new technology in Indonesia. Respondents with diploma-level education form the second-largest group at 25.29%, suggesting significant interest in electric car purchase among individuals with a diploma background. This aligns with Tanwir's (2020) research on hybrid electric cars in Malaysia, where education background positively correlates with the intention to own electric cars. Furthermore, 56.67% of respondents hold a Bachelor's degree, indicating a substantial interest in electric cars among individuals with higher education. The study also discovers that 9.37% of respondents with Master's and Doctoral degrees show interest in electric car purchase. The percentage results demonstrate a correlation between consumer education levels and the intention to buy electric cars, implying a significant influence between these variables.

Before testing the hypotheses, Structural Equation Modeling (SEM) analysis by AMOS 22 software requires the validity and reliability of measurement variables. Using convergent validity, measured by the average variance extracted (AVE), it shows that all measurement variables are valid and meet the standard AVE value > 0.5 (Abdillah & Jogiyanto, 2009). This can be seen in Table 2. Discriminant validity also indicates that

the measurement of the variables used is valid. This can be seen in Table 3, measured by the Fornell-Larcker Criterion. Reliability tests also show that the measurement of the variables is reliable based on the values of Cronbach's alpha and composite reliability, meeting the predetermined standard of more than 0.7. This can be seen in Table 4.

Furthermore, in the second phase, SEM analysis requires the measurement of the model fit. The results show that the model fit measurement meets the criteria, as seen in Table 5. In the last phase, testing the hypotheses results using the Structural Model Results can be seen in Figure 1 and Table 6.

**Table2:ConvergentValidity**

<i>Variabel</i>	<i>Indicator</i>	<i>Loading Factor</i>	<i>AVE</i>
<i>Green Purchase Attitude</i>	GPA1	0,979	0,969
	GPA2	0,979	
	GPA3	0,980	
	GPA4	0,988	
	GPA5	0,997	
<i>Subjective Norms</i>	SN1	0,990	0,981
	SN2	0,971	
	SN3	0,984	
	SN4	0,995	
	SN5	0,997	
<i>Perceived Behavior Control</i>	PBC1	0,992	0,975
	PBC2	0,995	
	PBC3	0,980	
	PBC4	0,989	
	PBC5	0,970	
	PBC6	0,916	
<i>Environmental Knowledge</i>	EK1	0,987	0,97
	EK2	0,982	
	EK3	0,986	
	EK4	0,995	
	EK5	0,992	
<i>Green Purchase Intention Electric Vehicle</i>	GPI1	0,990	0,984
	GPI2	0,990	
	GPI3	0,996	
	GPI4	0,973	
	GPI5	0,987	

Source:SEMapplicationprocessed,2023

**Tabel3:Fornell-LarkerCriterion**

	Green Purchase Attitude	Subjective Norms	Perceived Behavior Control	Environmental Knowledge	Green Purchase Intention Electric Vehicle
GPA	<b>0,984</b>				
SN	0,854	<b>0,988</b>			
PBC	0,792	0,769	<b>0,974</b>		
EK	0,982	0,866	0,793	<b>0,989</b>	
GPI	0,705	0,633	0,548	0,705	<b>0,987</b>

Source:SEMapplicationprocessed,2023

**Tabel4:ReliabilityTestResults**

<b>Variabel</b>	<b>Cronbach Alpha</b>	<b>Composite Reliability</b>	<b>Result</b>
Green Purchase Attitude	0,988	0,994	Reliable
Subjective Norms	0,989	0,995	Reliable

Perceived Behavior Control	0,989	0,991	Reliable
Environmental Knowledge	0,988	0,995	Reliable
Green Purchase Intention Electric Vehicle	0,989	0,995	Reliable

Source:SEMapplicationprocessed,2023

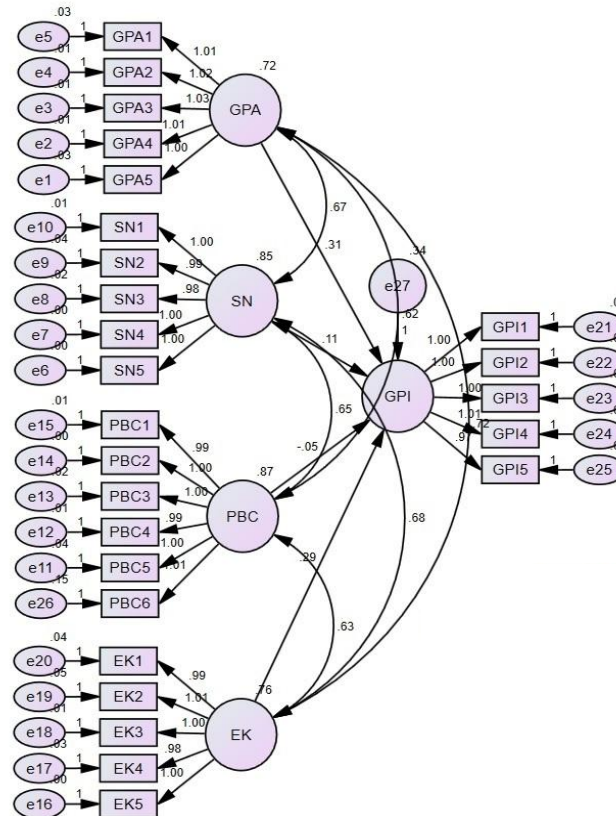


Figure1:StructuralModelTestResults

The Fit model measurement test is employed to assess the appropriateness of the model or its compatibility. The conformity indices utilized in the model are similar to those utilized in confirmatory factor analysis (CFA). Evaluating the fit model measurement results involves comparing the suggested fit indices, as outlined in Table 5

Table5:MeasurementoftheGoodnessofFitintheStructuralModel

GOF	Acceptable Match Level	Model Index	Explanation
<b>p-value</b>	$P \geq 0.05$ (good fit), $p < 0.05$ (bad fit)	0.000	Bad Fit
<b>GFI</b>	$GFI \geq 0.9$ (good fit), $0.8 \leq GFI < 0.9$ (marginal fit)	0.942	Good Fit
<b>RMR</b>	$RMR \leq 0.05$ (good fit)	0.007	Good Fit
<b>RMSEA</b>	$0.05 < RMSEA \leq 0.08$ (good fit), $0.08 < RMSEA \leq 1$ (marginal fit)	0.041	Good Fit
<b>TLI</b>	$TLI \geq 0.9$ (good fit), $0.8 \leq TLI < 0.9$ (marginal fit)	0.993	Good Fit
<b>NFI</b>	$NFI \geq 0.9$ (good fit), $0.8 \leq NFI < 0.9$ (marginal fit)	0.990	Good Fit
<b>AGFI</b>	$AGF \geq 0.9$ (good fit), $0.8 \leq AGFI < 0.9$ (marginal fit)	0.903	Good Fit
<b>RFI</b>	$RFI \geq 0.9$ (good fit), $0.8 \leq RFI < 0.9$ (marginal fit)	0.984	Good Fit
<b>CFI</b>	$CFI \geq 0.9$ (good fit), $0.8 \leq CFI < 0.9$ (marginal fit)	0.996	Good Fit

Source:SEMapplicationprocessed,2023

Table 5 indicates that the model exhibits a good level of model fit; thus, it can be said that the results of the goodness-of-fit test on the standard model used in this study suggest that the observed data is in accordance with the theory or model.

On the other side, the R-Square value for the green purchase intention of electric vehicles (GPI) stands at 0.784. This indicates that the combined impact of all independent variables on green purchase intention of electric vehicles (GPI) is 78.4%. In contrast, the remaining 21.6% is influenced by unexamined variables in the study, such as price and product or service quality. Notably, the R-Square value is considered substantial as it exceeds 0.67. As per Wynne W. Chin's (1998) classification, a R-Square value is deemed significant if it surpasses 0.67, moderate if it is greater than 0.33 but less than 0.67, and weak if it exceeds 0.19 but is less than 0.33.

**Table6:HypothesisTestingonDirectEffect**

Hypothesis	Construct	T-Statistics	P-Value	T-Table	Result
H1	Green Purchase Attitude has a positive and significant impact on Green Purchase Intention Electric Vehicle	8,122	0,000	1,96	Supported
H2	Subjective Normshas a positive and significant impact on Green Purchase Intention Electric Vehicle	9,168	0,000	1,96	Supported
H3	Perceived Behavior Control has a positive and significant impact on Green Purchase Intention Electric Vehicle	6,184	0,000	1,96	Supported
H4	Environmental Knowledge has a positive and significant impact on Green Purchase Intention Electric Vehicle	7,655	0,000	1,96	Supported

Hypotheses are tested by analyzing the estimated effects between variables in the model. To determine the significance of the research hypotheses, it is considered significant if the significance level is less than 5% (.05), and the t-value is greater than 1.96. Table 6 shows the results of hypothesis testing by presenting the path coefficient values and t-values. It can also be observed that the t-values for the variables green purchase attitude, subjective norms, perceived behavior control, and environmental knowledge are greater than the critical t-value, which is 1.96, indicating a significance level of 5%.

Research related to the influence of green purchase attitude on green purchase intention has been conducted. The findings of this research are similar to the study by Alzahrani et al. (2019), which found that preferences for hybrid electric cars significantly influence individuals' attitudes towards behavior, including the inclination to purchase electric cars. Wang et al. (2016) also stated that the adoption process of hybrid cars involves both positive and negative evaluations and perspectives on environmentally friendly behavior, such as the adoption of electric cars.

Related research also highlights the importance of potential customer attitudes towards the adoption of new technologies, such as electric cars. Ozaki (2011) found that customer attitudes significantly influence their intention to adopt electric cars. Based on these findings, further research on the influence of attitudes on the intention to purchase battery-based electric cars in Indonesia is needed. These data indicate that individual evaluations and assessments of electric cars play a crucial role in shaping their purchase intentions. The influence of attitudes on environmentally friendly behavior, especially in the context of adopting new technology, is intriguing to explore further.

In the Indonesian context, where environmental awareness is increasing, understanding how attitudes towards green purchases affect the intention to purchase battery-based electric cars can provide valuable insights for electric car manufacturers and marketers. Efforts to enhance positive attitudes towards electric cars can contribute to the growth and adoption of this environmentally friendly technology in the Indonesian market.

The results of the testing of the second hypothesis indicate a positive and significant influence between subjective norms and the green purchase intention of electric cars in Indonesia. In this study, subjective norms refer to individuals' perceptions of pressure from social environments to make or not make battery-based electric car purchases (Ajzen, 1991).

This finding is consistent with several previous studies that have examined the relationship between subjective norms and the intention to purchase environmentally friendly cars. For example, a study conducted by Tu and Yang (2019) found that subjective norms have a positive and significant influence on the intention to purchase environmentally friendly cars. These results indicate that individuals' perceptions of pressure from those around them influence their interest in buying environmentally friendly cars, such as electric cars.



This finding indicates that the more positive consumers' attitudes towards purchasing environmentally friendly products, the greater the likelihood that they will switch to battery-based electric cars as a sustainable option. This result underscores the importance of strengthening pro-environment attitudes in society to promote the adoption of more environmentally friendly technologies and contribute to climate change mitigation efforts in Indonesia. Additionally, awareness and education about the environmental benefits of using battery-based electric cars can further reinforce pro-environment attitudes and encourage more people to adopt electric cars as a more sustainable transportation option.

Furthermore, the findings from Mamun's (2019) and Asadi et al.'s (2021) research are also consistent with these results. Both studies assert that subjective norms significantly influence the adoption of environmentally friendly cars. Consequently, social norms and pressures from the social environment play a crucial role in shaping consumer purchasing behavior regarding environmentally friendly products, including electric cars.

Overall, the results of this study add support to the importance of subjective norms in influencing green purchase intentions or the intention to buy battery-based electric cars in Indonesia. These findings offer valuable insights for electric car manufacturers and marketers in designing more effective marketing strategies, including efforts to influence consumer perceptions and attitudes towards social pressure supporting the use of environmentally friendly cars. Additionally, the differences in research outcomes also suggest that more studies are needed to better understand the factors influencing subjective norms in the context of environmentally friendly car purchases, thus enhancing the implementation of environmentally friendly technology in the automotive industry in Indonesia.

The results of this research support the theory regarding subjective norms and green product purchase intentions, stating that subjective norms have a positive and significant influence on environmentally friendly product purchase intentions. These results indicate that the views and opinions of close individuals such as family, friends, or colleagues can influence consumer decisions to choose electric cars as a more sustainable option. In other words, if individuals perceive support and approval from their social environment regarding the purchase of battery-based electric cars, they are more likely to make that purchase. The implications of these findings underscore the importance of the roles of family, friends, and communities in shaping positive environmental norms and supporting consumer decisions to contribute to environmental protection through the adoption of sustainable technology such as battery-based electric cars in Indonesia.

The results of testing the third hypothesis indicate that perceived behavior control has a positive and significant impact on green purchase intentions for electric cars in Indonesia. This finding aligns with the research conducted by Ozaki (2011). In his study, Ozaki also found that perceived behavior control significantly influences the intention to buy hybrid electric cars. This indicates that individuals have perceptions of their control level over the purchase of electric cars, and these perceptions can affect their interest in buying battery-based electric cars.

These results also align with previous research findings emphasizing the importance of perceived behavioral control in shaping purchase intentions and consumer behavior towards environmentally friendly vehicles. For example, previous research by Tanwir (2020) found that the perceived control level over the purchase of hybrid electric cars positively influences consumer purchase intentions in Malaysia. This consistency in findings suggests that the higher the perceived control level consumers have over specific aspects of environmentally friendly vehicle purchases, the more likely they are to have intentions to purchase such vehicles. This is also consistent with other research highlighting the crucial role of perceived behavioral control in shaping consumer intentions and behaviors related to environmentally friendly innovations, such as electric vehicles. The higher the perceived behavioral control level, the more positively consumers intend to purchase environmentally friendly vehicles. These findings not only contribute to consumer understanding of electric vehicle purchases (Asadi et al., 2021) but also provide valuable guidance for companies and governments in designing marketing strategies and policies supporting the adoption of environmentally friendly vehicles in Indonesia.

This research concludes that perceived behavioral control has a positive and significant influence on the intention to purchase environmentally friendly battery electric vehicles in Indonesia. The results indicate that if individuals feel they have control over their purchasing behavior, it significantly influences their decision to buy battery electric vehicles. In the context of purchasing electric vehicles in Indonesia, the level of perceived behavioral control reflects how much consumers feel they have control or the ability to adopt environmentally friendly technology. The implication is that efforts to increase consumer knowledge and skills related to electric vehicles, as well as ensuring the availability of necessary resources, can be an effective strategy to enhance purchase intentions. These findings provide practical guidance for automotive companies, the government, and other stakeholders in designing educational programs and communication campaigns that can enhance consumers' perceived behavioral control regarding battery electric vehicles in Indonesia. By strengthening the factors influencing perceived behavioral control, it is expected to accelerate the adoption of electric vehicles as a

sustainable transportation alternative in Indonesia.

The results of the fourth hypothesis testing indicate that there is a positive and significant influence between environmental knowledge and the green purchase intention of electric cars in Indonesia, thus supporting this hypothesis. This is in line with previous research that found a positive relationship between environmental knowledge and the intention to purchase hybrid vehicles, such as the findings from Tanwir's study (2020), which also support the results of this hypothesis testing by stating that environmental knowledge significantly affects the intention to buy hybrid cars. Although the study is related to hybrid cars, not electric cars, it still provides a relevant insight into the importance of environmental knowledge in influencing the decision to purchase environmentally friendly vehicles.

Several references used in this study also support the findings. For example, the research by Mohiuddin et al. (2018) found that an increase in environmental knowledge will increase the likelihood of adopting hybrid vehicles. Another study by Wang et al. (2018) also found that the intention to purchase hybrid cars increases because of an increase in their environmental knowledge. These findings provide additional support for the results of the fourth hypothesis testing, indicating consistency in the relationship between environmental knowledge and the intention to purchase environmentally friendly vehicles.

The results of this hypothesis testing contribute significantly to the understanding of factors influencing the intention to purchase environmentally friendly electric cars in Indonesia. Additionally, these findings can contribute to promoting the implementation of more effective policies and marketing strategies to increase the adoption of electric vehicles in Indonesia.

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